CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER NO. 91-179
NPDES NO. CA0028967

WASTE DISCHARGE REQUIREMENTS FOR:

TELEDYNE SEMICONDUCTOR	SPECTRA-PHYSICS LASERS, INC.
1300 TERRA BELLA AVENUE	1250 WEST MIDDLEFIELD ROAD
MOUNTAIN VIEW	MOUNTAIN VIEW
SANTA CLARA COUNTY	SANTA CLARA COUNTY

The California Regional Water Quality Control Board, San Francisco Bay Region (hereinafter called the Board) finds that:

1. Teledyne Semiconductor and Spectra-Physics Lasers, hereinafter called the dischargers, by application dated March 7, 1991, as amended on September 13, 1991, have applied for reissuance of waste discharge requirements under the National Pollutant Discharge Elimination System (NPDES). Teledyne Semiconductor's previous NPDES permit expired on August 20, 1991.

2. The dischargers occupy adjacent facilities in the city of Mountain View. The dischargers are principally involved in electrical semiconductor and laser manufacturing. Due to leaks of chemicals from the facilities the sites have been placed on the National Priority List. The sites are being jointly cleaned up as directed by the Board pursuant to CERCLA/SARA and the California Water Code. Groundwater extraction is part of the sites' cleanup plan. A treatment system has been installed on-site to treat groundwater extracted by the on-site and Spring Street extraction systems, and groundwater generated during the sampling of monitoring wells.

3. The dischargers propose to continue groundwater treatment and subsequent discharge of treated groundwater from the site. In addition, the dischargers are evaluating installation of a second treatment system in the off-site area. The on-site treatment system consists of an air stripper to reduce volatile organic compounds (VOCs) in the groundwater. It appears that the second system will also consist of an air stripper.

   The dischargers propose to discharge an average of 504,000 gallons per day (gpd) of treated groundwater, with a combined maximum of 705,600 gpd from the two systems. The discharge will be at two points. Outfall 001 will be from a treatment plant at the dischargers' site to a storm drain which is tributary to Permanente Creek and San Francisco Bay. Outfall 002 will be from a treatment plant located at the Shoreline Park directly to Permanente Creek. Initially discharges from the two systems will be year round. As reuse plans are initiated, the dischargers are anticipated to be for approximately four months each year.

   The dischargers have considered the feasibility of reclamation, reuse, or discharge to a publicly owned treatment works (POTW), as specified in Board Resolution No. 88-160. The amended permit application included a proposal to reuse a portion of the extracted groundwater for irrigation primarily at the City of Mountain View Shoreline Park. Other potential irrigation locations include Highway 101 and at industrial sites. Use of

the extracted groundwater for irrigation is expected to occur for approximately eight months each year. The building of treatment facilities that allow reuse of the extracted groundwater makes discharge to the POTW economically impracticable. There is also a concern over sufficient sewer line capacity.

4. Groundwater to be treated from the site has been sampled and seven VOCs have been detected. These include 1,1 dichloroethene (1,1 DCE), 1,1 dichloroethane (1,1 DCA), 1,2 dichloroethene (1,2 DCE), tetrachloroethene (PCE), 1,1,1 trichloroethane (TCA), trichloroethene (TCE), and Freon 113.

5. The Board adopted a revised Water Quality Control Plan for the San Francisco Bay Region (Basin Plan) on December 17, 1986. The Basin Plan contains water quality objectives for Permanente Creek and South San Francisco Bay.

6. The existing and potential beneficial uses of South San Francisco Bay include:

   - Contact and non-contact water recreation
   - Wildlife habitat
   - Preservation of rare and endangered species
   - Estuarine habitat
   - Fish spawning and migration
   - Industrial service supply
   - Shellfishing
   - Navigation
   - Ocean commercial and sport fishing

7. The Basin Plan prohibits discharge of wastewater which has "particular characteristics of concern to beneficial uses" (a) "at any point in San Francisco Bay south of the Dumbarton Bridge" and (b) "at any point where the wastewater does not receive a minimum initial dilution of at least 10:1 or into any nontidal water, dead-end slough, similar confined water, or any immediate tributary thereof".

8. The Basin Plan allows for exceptions to the prohibitions referred to in Finding 7 above when it can be demonstrated that a net environmental benefit can be derived as a result of the discharge.

9. Exceptions to the prohibitions referred to in Finding 7 are warranted because this discharge is an integral part of a program to cleanup polluted groundwater and thereby produce an environmental benefit, and because receiving water concentrations are expected to be below levels that would affect beneficial uses. Should studies indicate chronic effects, not currently anticipated, the Board will review the requirements of this Order.

10. The Basin Plan prohibits the discharge of "all conservative toxic and deleterious substances, above those levels which can be achieved by a program acceptable to the Board, to waters of the Basin". The discharger's groundwater extraction and treatment system and associated operation, maintenance, and monitoring plans constitute an acceptable control program for minimizing the discharge of toxicants to waters of the State.

11. Effluent limitations of this Order are based on the Clean Water Act, Basin Plan, State and U.S. Environmental Protection Agency (EPA) plans and policies, and best engineering judgement. EPA Region IX draft guidance "NPDES Permit Limitations for Discharge of Contaminated Groundwater: Guidance Document" was also considered in the determination of effluent limits.

12. The issuance of waste discharge requirements for this discharge is exempt from the provisions of Chapter 3 (commencing with Section 21100) of Division 13 of the Public Resources Code (CEQA) pursuant to Section 13389 of the California Water Code.

13. The Board has notified the dischargers and interested agencies and persons of its intent to issue waste discharge requirements for the discharge and has provided them with the opportunity for a public hearing and an opportunity to submit their written views and recommendations.

14. The Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED that the dischargers, their agents, successors, and assigns, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, and the provisions of the Clean Water Act and regulations and guidelines adopted thereunder, shall comply with the following:

A. EFFLUENT LIMITATIONS

1. Effluent flow from the two treatment systems shall not exceed a combined maximum of 705,600 gpd.

2. The effluent, at the discharge point to the storm drain for Outfall 001 or at the discharge point to Permanente Creek for Outfall 002, shall not contain constituents in excess of the following limits:

Constituent	Instantaneous Maximum (ug/l)
VOCs	
1,1 dichloroethene	5.0
1,1 dichloroethane	5.0
1,2-dichloroethene	5.0
tetrachloroethene	5.0
1,1,1 trichloroethane	5.0
trichloroethene	5.0
Freon 113	5.0

Metals	
arsenic	20.0
cadmium	10.0
chromium (VI)	11.0
copper	20.0
lead	5.6
mercury	1.0
nickel	7.1
silver	2.3
zinc	58.0

3. The pH of the discharge shall not exceed 8.5 nor be less than 6.5.

4. In any representative set of samples, the discharge shall meet the following limit of quality:

   Toxicity: The survival of rainbow trout in 96-hour bioassays of the effluent shall be a median of 90% survival and a 90 percentile value of not less than 70% survival.

5. Treated groundwater used for irrigation shall meet the following effluent limits prior to reuse:

Constituent	Instantaneous Maximum (ug/l)
VOCs	
1,1 dichloroethene	5.0
1,1 dichloroethane	5.0
1,2-dichloroethene	5.0
tetrachloroethene	5.0
1,1,1 trichloroethane	5.0
trichloroethene	5.0
Freon 113	5.0

B. RECEIVING WATER LIMITATIONS

1. The discharge of wastes shall not cause the following conditions to exist in waters of the State at any place:

   a. floating, suspended, or deposited macroscopic matter or foam;

   b. bottom deposits or aquatic growths;

   c. alteration of temperature or apparent color beyond present natural background levels;

   d. visible, floating, suspended, or deposited oil or other products of petroleum origin;

   e. toxic or other deleterious substances to be present in concentrations or quantities which will cause deleterious effects on aquatic biota, wildlife, or waterfowl, or which render any of these unfit for human consumption either at levels created in the receiving waters or as a result of biological concentrations.

2. The discharge of waste shall not cause the following limits to be exceeded in waters of the State in any place within one foot of the water surface:

   a. pH: The pH shall not be depressed below 6.5 nor raised above 8.5, nor caused to vary from normal ambient pH levels by more than 0.5 units.

   b. Dissolved oxygen: 5.0 mg/l minimum. The median dissolved oxygen concentration for any three consecutive months shall not be less than 80% of the dissolved oxygen content at saturation. When natural factors cause lesser concentration(s) than specified above, the discharge shall not cause further reduction in the concentration of dissolved oxygen.

   c. Un-ionized ammonia (as N): 0.025 mg/l annual mean
      0.4 mg/l maximum

3. This discharge shall not cause a violation of any applicable water quality standard for receiving waters adopted by the Board or the State Water Resources Control Board as required by the Federal Water Pollution Control Act and regulations adopted thereunder. If more stringent applicable water quality standards are promulgated or approved pursuant to Section 303 of the Federal Water Pollution Control Act or amendments thereto, the Board will revise and modify this Order in accordance with such more stringent standards.

C. PROVISIONS

1. The dischargers shall comply with all sections of this Order immediately upon adoption by the Board and upon starting any discharge.

2. The dischargers shall comply with the self-monitoring program as adopted by the Board and as may be amended by the Executive Officer.

3. The dischargers shall notify the Board if any activity has occurred or will occur which would result in the discharge, on a frequent or routine basis, of any toxic pollutant which is not limited by this Order.

4. Any discharge to a location other than the discharge points specified in this Order will require a modification to this Order or submission of a second NPDES application.

5. The dischargers shall comply with all items of the attached "Standard Provisions, Reporting Requirements and Definitions" dated December 1986 and modified January 1987, except items A.10, B.2, B.3, C.8 and C.11.

6. This Order expires December 11, 1996. The dischargers must file a report of waste discharge in accordance with Title 23, Chapter 3, Subchapter 9 of the Code of California Regulations no later than 180 days in advance of such expiration date as application for issuance of new waste discharge requirements.

7. This Order shall serve as a National Pollution Discharge Elimination System Permit pursuant to Section 402 of the Clean Water Act or amendments thereto, and shall become effective 10 days after date of its adoption

provided the Regional Administrator, Environmental Protection Agency, has no objection. If the Regional Administrator objects to its issuance, the permit shall not become effective until such objection is withdrawn.

I, Steven R. Ritchie, Executive Officer, do hereby certify that the forgoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on December 11, 1991.

STEVEN R. RITCHIE
Executive Officer

Attachments: Self-Monitoring Program

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM

FOR:

Teledyne Semiconductor
1300 Terra Bella Avenue
Mountain View, Santa Clara County

and

Spectra-Physics Lasers, Inc.
1250 West Middlefield Road
Mountain View, Santa Clara County

NPDES NO. CA0028967

ORDER NO. 91-179

CONSISTS OF:

PART A Dated December 1986 Modified January 1987

PART B Adopted on December 11, 1991

PART B

Teledyne Semiconductor
1300 Terra Bella Avenue
Mountain View, Santa Clara County

and

Spectra-Physics Lasers, Inc.
1250 West Middlefield Road
Mountain View, Santa Clara County

I. DESCRIPTION OF SAMPLING STATIONS

A. INFLUENT

Station	Description
I-001	At a point in the groundwater extraction system tributary to Outfall 001 immediately prior to treatment.
I-002	At a point in the groundwater extraction system tributary to Outfall 002 immediately prior to treatment.

B. EFFLUENT

Station	Description
E-001	At a point immediately following treatment prior to discharge to Outfall 001.
E-002	At a point immediately following treatment prior to discharge to Outfall 002.

C. RECEIVING WATERS

Station	Description
C-001	At a point in Permanente Creek at least 100 feet but no more than 200 feet downstream from the storm drain discharge point from Outfall 001 of the effluent into Permanente Creek.
C-002	At a point in Permanente Creek at least 100 feet but no more than 200 feet upstream from the storm drain discharge point from Outfall 001 of the effluent into Permanente Creek.

C-003	At a point in Permanente Creek at least 100 feet but no more than 200 feet downstream from the discharge point from Outfall 002 of the effluent into Permanente Creek.
C-004	At a point in Permanente Creek at least 100 feet but no more than 200 feet upstream from the discharge point from Outfall 002 of the effluent into Permanente Creek.

II. SCHEDULE OF SAMPLING AND ANALYSIS

The schedule of sampling and analysis is provided in the attached Table A.

III. MODIFICATIONS TO PART A, DATED DECEMBER 1986 AND MODIFIED JANUARY 1987

All items of Self-Monitoring Program Part A, dated December 1986 and as modified January 1987, shall be complied with except for the following:

A. Additions to Part A: Section G.4.d.5: "Results from each required analysis and observation shall be submitted as laboratory originated data summary sheets in the quarterly self-monitoring reports. All chromatographic peaks for purgeable halocarbons and/or volatile organics shall be identified in any effluent sample, then these peaks shall be confirmed based on analyses using chemical standards necessary to achieve proper identification and quantification. Results shall also be submitted for any additional analyses performed by the discharger at the specific request of the Board for parameters for which effluent limits have been established and provided to the discharger by the Board."

B. Deletions from Part A: Sections D.2.b., D.2.g., D.3.b., E.1.e.1., E.1.f., E.2.b., E.3., E.4., E.5., F.2.b., G.2., G.4.b., and G.4.f.

C. Modifications to Part A: For the following, the discharger shall comply with the Sections as changed and reported herein:

1. Section D.2.a. is changed to read:

"Samples of effluent and receiving waters shall be collected at times coincident with influent sampling unless otherwise stipulated. The Regional Board or Executive Officer may approve an alternative sampling plan if it is demonstrated that expected operating conditions warrant a deviation from the standard sampling plan."

2. Section D.2.d. is changed to read:

"If two consecutive samples of any one constituent or parameter monitored on a weekly or monthly basis in a 30-day period exceed the effluent limit or are otherwise out of compliance, or if the

required sampling frequency is once per month or less (quarterly, annually or other) and the sample or parameter exceeds the limit or is otherwise out of compliance, the discharger shall implement procedure(s) acceptable to or approved by the Board's Executive Officer, on a case by case basis."

3. Section D.2.e. is changed to read:

"If any instantaneous maximum limit is exceeded, within 24 hours of receiving the analytical results indicating the violation, a confirmation sample shall be taken and analyzed with 24 hour turn-around time. If the instantaneous maximum is violated in the second sample, the discharger shall monitor daily, and shall not resume normal monitoring until the cause of the violation is found and corrected or the Board's Executive Officer authorizes the frequency of monitoring to be changed."

4. In Section F.1, the phrase "(at the waste treatment plant)" is changed to read "(at the locations of the various extraction and treatment systems)."

5. Written reports required in Section G.4 shall be filed quarterly by the thirtieth day following the end of a calendar quarter.

6. Section G.4.e is changed to read:

"Summary tabulations of the data shall include, for each constituent, total number of analyses, maximum, minimum, and average values for each period. Total flow data shall also be included. This information shall be prepared in a format similar to EPA Form 3320-1. This information shall be submitted only to the Regional Board:

Executive Officer
California Regional Water Quality Control Board
2101 Webster Street, Suite 500
Oakland, CA 94612

7. The Annual Report required in Section G.5 shall be submitted by January 30 of each year in place of the quarterly report due on the same day.

IV. MISCELLANEOUS REPORTING

If any chemicals or additives are proposed to be used in the operation and /or maintenance of the groundwater extraction/treatment system, the discharger shall obtain the Executive Officer's concurrence prior to use. The details concerning such approved use shall be reported in the next periodic report submitted to the Board.

I, Steven R. Ritchie, Executive Officer, hereby certify that the forgoing Self-Monitoring Program:

1. Has been developed in accordance with the procedure set forth in this Regional Board's Resolution 73-16 in order to obtain data and document compliance with waste discharge requirements established in Regional Board Order No. 91-179.

2. Was adopted by the Board on December 11, 1991.

3. May be reviewed at any time subsequent to the effective date upon written notice from the Executive Officer or request from the discharger, and revisions will be ordered by the Executive Officer or Regional Board.

STEVEN R. RITCHIE
Executive Officer

Attachment: Table A

TABLE A: SCHEDULE FOR SAMPLING, MEASUREMENTS, AND ANALYSIS

SAMPLE STATION	I-001 I-002	E-001 E-002	C-001 C-003	C-002 C-004
TYPE OF SAMPLE	Grab	Grab	Grab	Grab
FLOW RATE (GPD)		M		
FISH TOXICITY		Y		
96-HR TL				
%SURVIVAL				
AMMONIA NITROGEN		V		
pH (UNITS)		M	Q	Q
DISSOLVED OXYGEN		Y	Y	Y
MG/L & % SATURATION				
TEMPERATURE (C)		M	Q	Q
ARSENIC		Y		
CADMIUM		Y		
CHROMIUM TOTAL		Y		
COPPER		Y		
SILVER		Y		
LEAD		Y		
MERCURY		Y		
NICKEL		Y		
ZINC		Y		
EPA METHODS 601/602	Y	M		
EPA METHOD 624*	Y	Y		
OPEN SCAN				
STANDARD OBSERVATIONS			Q	Q

LEGEND FOR TABLE A

* Annual 624 sampling may substitute for that month's 601/602 sampling.

M Monthly sampling, either when discharging or reclaiming.

Q Quarterly sampling of receiving waters when discharging.

V Varies; total ammonia nitrogen shall be analyzed and un-ionized ammonia calculated whenever fish bioassay test results fail to meet specified percent survival.

Y Annually